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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/539,918

03/31/2000

James M. Florence

BWD:7146.063

9507

7590

01/24/2006

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EXAMINER

DI GRAZIO, JEANNE A

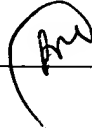
ART UNIT

PAPER NUMBER

2871

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/539,918	Applicant(s) FLORENCE ET AL.	
	Examiner Jeanne A. Di Grazio	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE 10/21/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6, 8, 10, 11, 13, 14, 17-19 and 24-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 8, 10, 11, 13, 14, 17-19 and 24-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims

Claims 1-4, 6, 8, 10-11, 13-14, 17-19 and 24-28 are pending per Response of October 21, 2005. By Amendment of April 28, 2003, claims 5, 7, and 12 have been cancelled. Claims 9, 15, 16, 20-23, 29-31 and 35 have been cancelled. Claims 32-34, 36-40, 42 and 43 have been withdrawn from further consideration.

Applicant has amended independent claim 1 per Amendment of October 21, 2005.

Election/Restrictions

Applicant's election without traverse of Group I (claims 1-4, 6, 8, 10-11, 13-14, 17-19 and 24-28 readable thereon) in the reply filed on December 17, 2004 is acknowledged.

Claims 32-34, 36-40, 42 and 43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on December 17, 2003.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 21, 2005 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 8, 11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,565,933 (to Reinsch) in view of United States Patent 4,850,685 (to Kamakura et al.).

Per claims 1 (amended), 8, and 11: Reinsch has, referring to Figure 1, a light source (18), a polarizing device (color switching apparatus 20), a polarizing beam splitter (cube 24), LCD panel (LC light valve, 12), projection source (26, 28), and color component rotator (Figure 2, rotators 38, 40, 48) wherein at least a portion of said light passes through said color component rotator, wherein said color component rotator changes the polarization state of a first wavelength of said light incident thereon while being free from changing the polarization state of a second wavelength of light incident thereon (Column 2, Lines 31-41).

Please note that the limitation wherein said light of said first wavelength range and said second wavelength range are transmitted through said system simultaneously is presumed met by the art of record. Reinsch teaches the use of a white light beam from a high intensity light source where the light is then separated into three primary colors. All of the primary colors are emanated from the light source and transmitted through the projector system together.

Reinsch has these embodiments for sequential modulation at a rate which is faster than one can perceive flicker (Abstract, entire patent).

Reinsch does not appear to explicitly specify that the color component rotator is optically located between the polarizing device and light source.

Kamakura Figure 11 shows a color synthesis cube (86) optically placed between a light valve with polarizing means (85) and a projection lens (87).

It would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Reinsch in view of Kamakura for compactness (Column 5, Lines 1-10).

Thus, claims 1, 8 and 11 are rejected.

Per claim 3: Reinsch has multiple color component rotators (38, 40, and 48).

Thus, claim 3 is rejected.

Per claims 13 and 14: Light from a light source is separated into three color components (red, blue, and green) see Figure 2.

Thus, claims 13 and 14 are rejected.

Claims 2, 4, 6, 10, 17, 18 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,565,933 (to Reinsch) in view of United States Patent 4,850,685 (to Kamakura et al.) and further in view of United States Patent 6,304,302 B1 (to Huang et al.).

Per claim 2: Reinsch does not appear to have a color component rotator between a polarizing beamsplitter and light source.

J. Huang discloses a half-wave plate [305] between an optical film [302] and projection lens [311] where the optical film acts as a polarizing device.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals and projectors at the time the invention was made to modify Reinsch in view of Huang for an optical film that acts as a polarizing device in a liquid crystal projector.

Thus, claim 2 is rejected.

Per claims 4 and 6: Reinsch does not appear to have a second and third LCD panel.

Huang has second and third LCD panels (red, blue and green LCD panels) for generating a second (and third) image, respectively and for projecting lights of the various colors onto a screen (Abstract, entire patent).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals and projectors at the time the invention was made to modify Reinsch in view of Huang for generating second and third color images in an LCD projector and for projecting the various colors onto a screen.

Thus, claims 4 and 6 are rejected.

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Per claim 10: Reinsch does not appear to have a dichroic filter.

Huang discusses the use of dichroic filters (optical film 302) to separate light into separate color components.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals and projectors at the time the invention was made to modify Reinsch in view of Huang for a dichroic filter that separates light into its various components.

Thus, claim 10 is rejected.

Per claims 17, 18 and 24: Reinsch has a light source (Figure 1, light source 18), polarization converter (Figure 1, switch 20), projection source for projecting images (Figure 1, items 26 and 28), and at least two color component rotators (Figure 2, rotators 38, 40 and 48), each of said color component rotators being located between said polarization converter and said projection source (Figures 1 and 2) and wherein at least a portion of light passes through at least one of the color component rotators and at least a portion of light passes through another one of the color component rotators (Col. 2, Lines 31-41).

Reinsch does not appear to explicitly specify that the color component rotator is optically located between the polarizing device and light source.

Kamakura Figure 11 shows a color synthesis cube (86) optically placed between a light valve with polarizing means (85) and a projection lens (87).

It would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Reinsch in view of Kamakura for compactness (Column 5, Lines 1-10).

Reinsch does not appear to explicitly specify that wherein at least one wavelength range of said light passing through said rotator is rotated while at least one other wavelength range of said light passing through said rotator is not rotated.

Huang teaches and discloses a liquid crystal display system wherein P-polarized light is transmitted to a blue LCD panel while other light of other wavelengths is deflected by 90^0 (Abstract, entire patent). The system is easy to design thereby improving yield and lowering cost (Column 2, Lines 27-35)(discussing the problems with the prior art).

Therefore it would have been obvious to one of ordinary skill in the art of liquid crystals and projectors at the time the invention was made to modify Reinsch in view of Huang for a simple system to design that improves yield and lowers cost.

Thus, claims 17, 18 and 24 are rejected.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,565,933 (to Reinsch) in view of United States Patent 4,850,685 (to Kamakura et al.) and further in view of United States Patent 6,304,302 B1 (to Huang et al.) and further in view of United States Patent 6,142,633 (to Takahara et al.).

Per claim 19: Reinsch does not appear to have a fly's eye lens and prism array.

Takahara et al. discloses a polarization conversion element near a fly's eye lens and near a prism (Prior Art, FIG. 21) for the purpose of converting various polarized light components into unidirectionally polarized light.

Therefore, it would have been obvious, to one of ordinary skill in the art of liquid crystals and projectors at the time the invention was made, to make the polarization conversion element out of the fly's eye lens plate and prism (as opposed to near these elements) in order to reduce

the size of the optical system. It is generally always preferable to reduce the size of complex optical systems for ease of manufacturing and cost.

Thus, claim 19 is rejected.

Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,565,933 (to Reinsch) in view of United States Patent 4,850,685 (to Kamakura et al.) and further in view of United States Patent 6,304,302 B1 (to Huang et al.) and further in view of United States Patent 6,089,718 (to Hashizume).

Per claims 25-28: Reinsch does not appear to have a dichroic filter and crossed dichroic prism.

Hashizume has dichroic filters defining at least two color channels, and one of said polarizing beam splitters is located in one of said color channels and the other of said polarizing beam splitters is located in the other of said color channels. Dichroic filters reflect certain wavelengths and transmit other wavelengths; thus, a dichroic filter defines a given color channel. The placement of a beam splitter in a given channel acts to reflect wavelengths of a given state and to transmit wavelengths of another given state. Dichroic filters and beam splitters act in concert with each other, reflecting and transmitting appropriate wavelengths. Hashizume (USPN 6,089,718) discloses the use of a crossed dichroic prism in a projection display device for the purpose of forming a color image by synthesizing light of three colors [Col. 9, Lines 23-25].

Therefore, it would have been obvious, to one of ordinary skill in the art of liquid crystals and projectors at the time the invention was made to modify Reinsch in view of Hashizume for the reflection and transmission of light of appropriate wavelengths.

Thus, claims 25-28 are rejected.

Response to Arguments

Applicant's arguments with respect to said claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio
Patent Examiner
Art Unit 2871

JDG


ANDREW SCHECHTER
PRIMARY EXAMINER